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Ports O' Call

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February 8, 1985

City of Seattle Purchasing
400 Yesler Building, Room 405
Seattle, WA 98104

ATTN: MR. E.R. JONES

RE: PCB DECONTAMINATION OF FUEL OIL - RFP 42672

Gentlemen:

This letter is intended to serve a joint proposal from Riedel Environmental Services (Riedel) of Portland, Oregon, and Detox Industris, Inc. (DTI) of Houston, Texas. We recognize that the proposal is not responsive to the RFP in several respects. However, we sincerely feel that the technology and approach proposed herein represents one of the most environmentally acceptable and economical solutions to the very difficult problem facing Seattle City Light.

SUMMARY

Riedel and DTI propose to selectively remove the PCBs from the contaminated fuel oil through the use of specially adapted, naturally occurring, micro-organisms. The entire process will be carried out on site. Prior to starting the project, a 1,000 gallon demonstration will be conducted on site in order to prove the efficiency of the technology to Seattle City Light, the State and Federal agencies.

We estimate that the entire effort, including both the full-scale project and the demonstration, can be completed approximately 31 weeks from the time we reach substantial agreement on the contractual terms and Seattle City Light's approval to proceed.

PROCESS DESCRIPTION

Scientists have been aware for some time that any given micro-organism has a relatively narrow spectrum of materials that it can utilize as food. Given the right type of organisms and sufficient time and environment to adapt their diet, a large population can be developed which will be highly specific to a particular substrate or food (i.e. PCB). This is the underlying principle of the technology that is proposed for this project. Detox, Inc. has developed a proprietary method for producing large quantities of organisms which are highly adapted to specifically metabolizing PCBs in a background matrix of soil, petroleum oil and other substances. There is relatively little effect on the matrix.

The process involves the aerobic fermentation of patented microbes in a broth which contains nutrients, PCPs and the matrix which will be encountered in the field. Conditions are carefully controlled in such a way as to adapt the innoculum to the environment and substrate and to maximize reproduction rates. A concentrated paste of organisms is extracted from the broth by centrifuge. Several hundred gallons of concentrated biomass will be needed during the course of this project, and will be produced at DTI's facilities in Houston.

Concentrate will be periodically mixed directly into the storage tank along with some nutrients, emulsifiers and certain other proprietary agents. The tank contents will be kept at approximately 80°F and will be thoroughly mixed by means of recirculation using the existing pumping system augmented by an in-tank mixer.

It is expected that the PCB concentration will be reduced to less than two (2) ppm in approximately 90 days. The process is truly "in-situ". That is, no contaminated oil leaves the tank except for the small quantity contained in the recirculation piping.

At this point, we do not have a quantitative measure of the heating value of the fuel after teatment. We are confident that the reduction will be nominal and that the fuel will be suitable for boiler operation or as a heavy marine diesel. Upon completion of the PCB destruction, the fuel oil will be cleaned and dried. We offer no warranty on the residual fuel as to BTU content.

QUALIFICATIONS AND EXPERIENCE

Detox Industries, Inc. (DTI)

Detox Industries, Inc. is a Texas corporation formed on June 28, 1983 for the purpose of acquiring the technology of another Texas corporation, Biotechnology Unlimited, Inc. Detox, thereafter, perfected the technology to produce naturally occurring micro-organisms which destroy organic hazardous materials and has a patent pending on its process and novel micro-organisms. On August 15, 1984, Detox become the first company in the U.S.A. to receive E.P.A. approval as an alternative technology under 46 CFR 761 to biologically degrade Polychlorinated Biphinols (PCBs) on site.

The new technology of DTI is the preferred alternative to both landfilling and incineration in most cases simply because it is less expensive and is a final solution to the dilemma of safe disposal. In addition, Detox's process eliminates the problem of continuing liability which otherwise faces any generator of hazardous material who chooses to landfill his problem.

Commercial-scale projects executed by DTI include the reduction from 2,900 ppm to less than 1 ppm in 14,000 cubic yards of PCP contaminated road cover in Montgomery County, Texas. In another project involving several feet of organically saturated soils from the yard of a wood treating operation, PCP levels ranging as high as 60,000 ppm are being reduced to less than 1 ppm. The project completed by DTI that most closely approximates the one proposed herein was done for the firefighting school at Texas A & M University. 16,000 gallons of fuel oil containing 46 ppm of PCBs were treated to the extent that no PCB was detectable in the decontaminated oil.

Riedel Environmental Services

Riedel Environmental Services was formed in 1971 primarily for cleanup of oil spills. Since that time the services offered by RES have been greatly expanded to include hazardous waste site cleanups; hydrogeological studies; waste treatment and disposal; recovery of subsurface contaminants; treatment of surface, subsurface hydrocarbon spills; hazardous waste transportation; personnel monitoring; training; soil, water and air sampling; consulting; and environmental engineering.

The company experienced a considerable growth in 1975, entering into contracts with a number of major railroads. This contract required a response time of five hours to any site west of the Mississippi. To provide response for this contract, RES designed and constructed 23 identical emergency response truck-and-trailer combinations and prepositioned them so that any place in the Western U.S. could be reached within a four-hour time period, allowing one hour for mobilization. Offices were established in San Francisco and St. Louis to provide personnel who would be available within the required response time. Personnel in these offices are on pagers 100% of the time and will respond and be ready to leave for spills within one hour of the time called. Chartered jets are on standby at all of our offices to provide immediate transportation to respond to emergencies within the particular office response zone. The emergency response system alone represents an equipment investment of over $8 million. During the past several years, RES has responded to well over 1,000 emergency spills from a few gallons of extremely toxic chemical to the successful cleanup of over three million gallons of oil products.

RES began as an oil cleanup company; it soon began to move into the chemical response business also. When the contracted emergency response system was installed, it required response to chemical incidents and moved RES into the chemical business in a large way. Over the past four or five years, the chemical cleanup business has become the dominant factor in the RES portfolio; and while the strength of RES is centered around its emergency response system, well over two-thirds of its revenue comes from non-emergency remedial actions on either a bid or negotiated basis. Over the past several years, we have added personnel and expertise in many various fields related to protecting the environment. At this point, our 75 trained personnel can provide virtually any service involved in recovering or eliminating environmental pollutants.

DEMONSTRATION

Laboratory-scale work done by DTI in Houston on the samples of fuel oil provided by Seattle City Light clearly indicates their technology will effectively reduce the PCBs in the Bunker C matrix. We believe that any technical risk can be reduced and the general comfort level of all concerned can be increased by a semi-works scale demonstration as an integral part of the entire project. Regulatory approvals should be easier to obtain under this phased approach.

Accordingly, we propose to initially carry out a 6-8 week demonstration with approximately 1,000 gallons of contaminated material. The conditions employed would closely simulate those that we plan to use in treating the oil in the storage tank. All equipment associated with the demonstration would, of course, be located within the diked area.

PERMIT STATUS

The technology has been successfully employed on several commercial-sized projects in the Houston area (EPA Region VI). General approval of the process has been granted by the Administrator in Region VI (see Attachment 1). Nationwide permitting is presently being sought through the EPA in Washington, D.C.

This particular project technically may not require EPA approval under TSCA and/or 40 CFR 761 in that it is a truly "in-situ" process. Reduced to its basic elements, the process simply involves the mixing of an additive with the fuel oil to reduce the PCB content to below regulated levels. Contaminated oil never leaves the tank and the environmental risks are no greater than those involved in simply allowing the oil to sit in the tank. We believe that it could be successfully argued that the requirements of 40 CFR 761 do not pertain in this situation. Nevertheless, we do plan to work closely with the EPA and provide them with analytical data and access that they may require. If necessary, we will obtain permits or approvals under 40 CFR 761, but do not believe that obtaining permits or approvals will in any way delay the project.

IMPLEMENTATION SCHEDULE

Attachment 2 to this proposal is a project schedule. Given a reasonable level of cooperation with the regulatory agencies, we believe that the entire project from demonstration through completion will take approximately 31 weeks from the time Seattle City Light authorizes us to proceed. Major activities include 6-8 weeks for the demonstration work and 16 weeks to actually treat the bulk of the fuel oil. Based on a mid-March award, the project would be completed by mid-October.

FINANCIAL TERMS

The demonstration work will be carried out at no cost to Seattle City Light. After it has been satisfactorily demonstrated that the technology will indeed reduce the PCBs to the required two (2) ppm level, the City would be expected to award Riedel a contract to complete the work for a firm price of $1,096,000 (One million, ninety-six thousand and No/100 dollars) except as provided below.

Seattle City Light would be free to keep the decontaminated oil for its own use, or Riedel will arrange to sell it for market value and return the proceeds of the sale to the City. Thus, if a value of $600,000 is assigned to the decontaminated oil, the net cost of the project to the City will be $496,000.

A payment schedule which contains interim partial payments to Riedel upon achieving 25%, 50% and 75% destruction will be negotiated. The payment schedule shall also include a provision that when the level of PCB contamination reaches less than 50 ppm, fifty percent of the fee provided for above will be due and payable to Riedel.

GENERAL CONDITIONS

Riedel will comply with the affirmative actions and insurance provisions of the RFP as a condition precedent to award. Bonding requirements can be met. However, the cost of the bond will be passed on to the City in addition to the firm price stated above. Since Riedel is a local/regional company of considerable financial substance, we feel that this is an unnecessary cost for the City to incur.

The two-step approach that we have proposed herein is predicated on the cooperation and consent of the EPA. Seattle City Light would appear to run little, if any, risk of TSCA or other fines in view of the agency's involvement. Since the City is not financially at risk, we do not feel that liquidated damages are appropriate. We are willing to negotiate a reasonable level of financial protection for the City if required.

RISK ASSESSMENT

The level of risk to personnel, property and the surrounding environs is probably less with the DTI technolgoy than with any other process that might be considered.

Degradation of the PCBs occurs within the storage tank. Oil does not have to be removed to smaller tanks for batch treatment or pumped to trucks or barges for removal. The risk of an oil spill is no greater than that encountered during normal operation of the power plant.

Micro-organisms that are employed are not genetically engineered. They are naturally occurring organisms that have simply been conditioned to selectively eat PCBs and pose no threat to the environment whatsoever.

No reactive chemicals which might cause a fire or explosion are used. An insignificant amount of heat is released in the process, and there is no potential for a run-away reaction.

There are virtually no gaseous emissions, no combustion gases, no hydrocarbon vapors. This is particularly important in an air quality non-attainment area like Seattle.

SEATTLE CITY LIGHT

During the decontamination process, after request of Riedel, Seattle City Light will provide sufficient heating capacity and will heat the contents of the tank to 80°F and maintain such temperature during the decontamination process at no expense to Riedel.

CONCLUSION

Riedel and DTI appreciate the opportunity to offer their proposal to the City. We believe that Riedel's field experience in hazardous and toxic waste coupled with DTI's innovative PCB technology will be an unusually effective combination that provides Seattle City Light with a technically sound and economical solution. Even though this proposal does not attempt to meet the letter of the RFP, we hope that it will be given careful consideration.

Please feel free to call me at any time. Technical questions, reference requests, etc. should be addressed to Bob Ely, our man in Seattle. He can be reached at 784-0664.

Sincerely,

RIEDEL ENVIRONMENTAL SERVICES

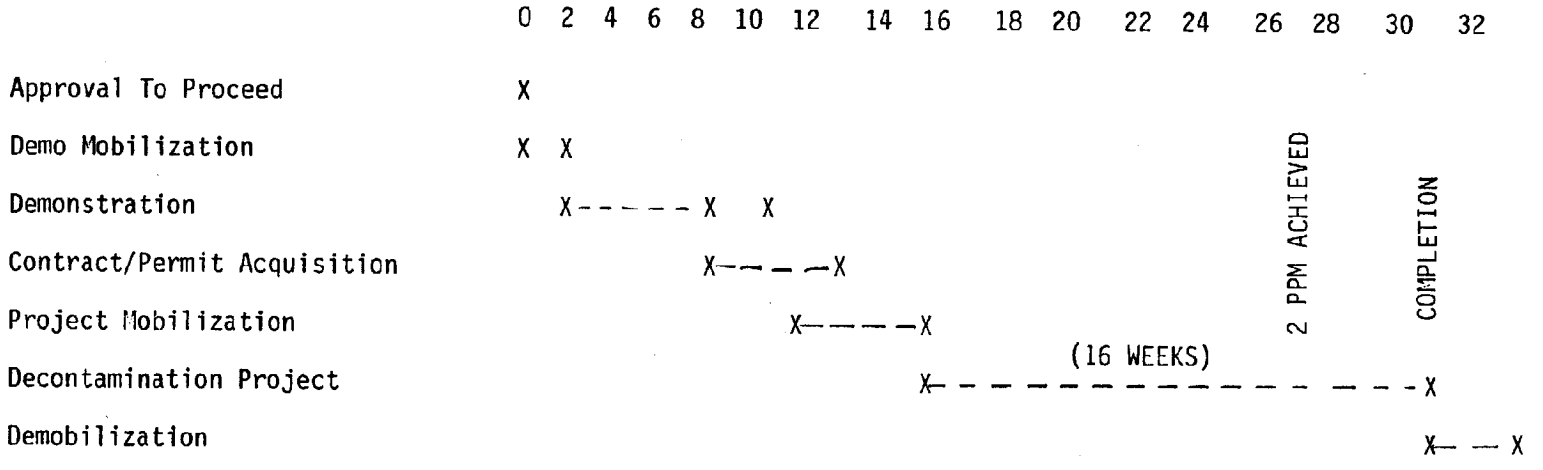
John R. Spencer
President

JRS/kkm

Enclosures: Attachment 1 - EPA Approval Letter (Region VI)
Attachment 2 - Project Schedule
Attachment 3 - DTI Literature
Attachment 4 - Riedel Literature

SEATTLE CITY LIGHT

Project Schedule



Attachment 2